

## Description on Research Article Introduction Section by Computer Science Researchers in Malaysian Private Universities

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### ABSTRACT

*The competition and pursuit for better ranking within the academia drive a more prevailing and urgent need to increase the number of research publications. This paper examines twenty research article introduction sections written in English to identify the rhetorical patterns and structures for better understanding on how the writers write. The research articles are written by the Computer Science researchers in Malaysian private universities. This paper presents the results of the move analysis on the rhetorical structure of the selected text and the descriptions on how the moves were accomplished by the writers. In general, the results show that the writers utilised the Create a Research Space (CARS) model by Swales (2004). The three moves suggested in CARS model are establishing the research territory, establishing the research niche and presenting the present work. While all the three moves suggested in the model are fulfilled by the writers, some of the rhetorical steps which are proposed as obligatory steps in CARS model are being underutilised. Such underutilisation calls for more emphasis and employment on the respective rhetorical steps. The respective rhetorical steps are presenting positive justification, summarising methods, announcing principle outcomes and stating the value of the present research.*

**Keywords:** Research, Article, Academic, Writing, Malaysia, Higher Education, Publication, Introduction, Computer Science

### 1. INTRODUCTION

The drive to increase the number of publications by Malaysian academicians has grown more demanding in the past few decades not only from publishers' and editorial perspectives (Zakaria & Rowland, 2006) but also from the Ministry through various directives (Jusoff, Samah & Abdullah, 2009; Department of Higher Education, 2012; Singh, Thuraisingam, Nair & David, 2013). Furthermore, a larger number of publications are needed in order for Malaysia to reach the global standard on "technology creation and innovation, research and innovation" (Jusoff, Samah & Abdullah, 2009, p.31).

It was reported in 2013 that universities from South Korea, Hong Kong, Japan, Singapore, China and Taiwan have improved in their rankings but Malaysian universities' rankings have dropped. The lack of quality research and citations which accounted for more than 50% of the ranking criteria was identified as one of the major problems according to the Ministry of Education (Roosfa & Yahya, 2011; Singh, Thuraisingam, Nair & David, 2013, p.2). Masron, Ahmad and Rahim (2012) also highlighted the importance of publishing research articles in relation to fulfilling the university key performance indicator and ranking target. In short, the need to increase the number of research publications has become more prevailing and urgent.

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In relation to this goal, university groups are created and categorised by the Ministry of Education (MoE). The groups determine the research roles and funding assigned to the universities; for example, the research universities are designated to produce a bigger number of research and are allocated with more research funds (Aizan, Rosna, Nurahimah, Chan & Doria, 2014). The importance of research to the research university group is evident even during the application stage to be in the Research University group; 80 percent of the evaluation to join this group was based on the quality and quantity of the research (Bakri & Willet, 2011). While the APEX university is given the autonomy in finance, service scheme, management, student intake and a few other areas, the Private universities on the other hand are assigned with more operational roles such as developing skills among teaching staff and promoting collaboration between private and public universities (Lee & Fauzian, 2014).

While key performance indicators and research grant funds may spur research publications amongst academicians in the public universities, the difference in funding, policies and structure have caused academicians in private universities to focus most of their interests on teaching (Goh & Sandhu, 2012). Studies (Dhillon, Ibrahim & Selamat, 2015; Tan, 2016) have indicated the different research practices amongst the two groups, particularly on the numbers of publication by the private university group which are significantly lower than the public university group. The research universities are designated to produce a bigger number of researches and are allocated more funds (Aizan, Rosna, Nurahimah, Chan & Doria, 2014) as such; it defines the research role and the research practices of the two different groups.

The reasons for the different practices and research publication numbers have been discussed in the sources above but not much has been elaborated on the differences in the language use of the writing pieces. Details on how the private universities academicians write or how they might differ from the other group are yet to be accounted for. A description focusing on the writing practice may earn more awareness and suggestions amongst the writers, language instructors and post graduate supervisors in the private universities. This research looks at the textual analysis of twenty research article introductions in Computer Science discipline written in English by the academics in Malaysian private universities.

## **2. RESEARCH ARTICLE INTRODUCTION SECTION**

Many researchers have highlighted the importance of having a good introductory paragraph (Flowerdew, 1999; Adnan, 2009; Gill, Nambiar, Ibrahim, & Hua, 2010; Shehzad, 2010). Often, a research article is more than 6000 words in length and with technology; there are many articles available for reading; as such competition for readership is stiff. The Introduction section of the research articles often has an effect on the readers' interest whether the article "is significant and worth exploration (sic)" (Shehzad, 2010, p.15) and whether it is worthy enough for further reading. On top of this, the introduction section must not only appeal to common researchers but also to the reviewers, editors and grant panels. The Introduction section has been considered as very important in determining the "chances for publication" and "situates the study among other studies" (Adnan, 2009, p.111). In short, the introduction section of the research article is important to sustain readership as well as, to impress different levels of audience, reviewers, editors, fellow researchers, expert researchers and, potential research grant sponsors and therefore deserves extra attention from the writers and writing instructors.

### **2.1 CARS Model**

Create A Research Space (CARS) model was formed and revised by Swales (1987, 1990, 2004). It was developed to enable analysis of the "main rhetorical patterns of organising introductions in research articles" (Fakhri, 2004, p.112) and has been used in many researches (Swales & Najjar, 1987; Ahmad, 1997; Jogthong, 2001; Samraj, 2002, 2008). Swales proposed the following

CARS model that suggested writers write research article introductions with the aims of fulfilling these three moves: establishing a territory, establishing a niche and occupying a niche. The first step of establishing a territory refers to the act of creating a subject area for the intended research. CARS model (2004) begins with Move 1 which is establishing a research territory and making a topic generalisation with increasing specificity on the intended research. This move incorporates the review of previous research as an obligatory support for Move 1. Next, Move 2 is “establishing a niche” where the writer reveals the niche or the specialised area in the subject which has already been generally mentioned in earlier Move 1. In Move 2 the previous research is reviewed, development in the research area is explained, unresolved matters in the research are pointed out and the stance on the research development is presented. The next move is Move 3 which is on presenting the present work. Step 1 in Move 3 is the obligatory step, which is Announcing the present research descriptively and, or purposively (Swales, 2004). In this obligatory step, the readers are presented with the information on what the rest of the paper is going to be reporting or discussing. The following steps are optional which are, Step 2: stating the research questions or hypothesis, Step 3: giving definitional clarifications and Step 4: summarising methods. The subsequent steps are probable in some discipline fields which are announcing principle outcome, stating the value of the present research and outlining the structure of the paper. All of the three moves can be realised using 10 variations of steps. Out of the ten steps, four steps were optional and another three were identified as “probable in some fields, but unlikely in others”.

### 3. METHODOLOGY

This study employs genre analysis as the methodology. Genre analysis is established over the decades and has been identified as a suitable methodology for academic text analysis (Bhatia, 2002; Flowerdew, 2002; Connor, 2004). Move analysis (Swales, 1981, 1990) is by far the most common example of such a specific genre-level analysis. Move analysis also known as “Swalesean genre moves” analysis (Upton & Connor, 2001, p.317) was developed as a top down approach (where the focus is on meaning and ideas) to analyse the discourse structure of texts from a genre; the text is described as a sequence of ‘moves’, where each move represents a stretch of text serving a particular communicative (that is, semantic) function. The analysis begins with the development of an analytical framework, identifying and describing the move types that can occur in this genre: these are the functional/communicative distinctions that move types can serve in the target genre.” (Upton & Cohen, 2009, p.4).

Move analysis has been used by many researchers. Ahmad (1997) used it as the initial analysis for Malay scientific research articles and from this she proposed a project-justifying model. Move analysis specifically on CARS model was also tested on Indonesia research articles by Safnil (2000) and Mirahayuni (2002) both were at PhD dissertation level. Safnil (2000) came up with a new model Problem Justifying Project (PJP) for rhetorical analysis on Indonesian research article introductions.

There were also research works on move analysis that was an extension to Swales’ (1990) CARS model. The study by Adnan (2009) analysed the Indonesian research article introductions in education and found none of the research article introductions fit the CARS model. Soler-Monreal, Carbonell-Olivares and Gil-Salom (2011) used Bunton’s model which was also a modification of Swales’ model to study the introductory section of PhD Theses. All in all, move analysis is a suitable analysis method of this study which falls under the genre of Science Computing research articles, that is indexed in Scopus.

#### 4. FINDINGS

The analysis of the data has been presented according to the moves structure proposed in CARS (Swales, 2004). The frequency of each move and step are presented. The summary of the moves and steps are compared with the Computer Science rhetorical structure proposed by Shehzad (2010). The reason for comparing the findings of this study with Shehzad's (2010) is because the study by Shehzad (2010) reported on the practices by Computer Science writers in the global publication. Given that the target publication is for international journals, the Malaysian writers would benefit if their practices conform to the suggestion by Shehzad (2010). The comparison shows the different practices by the Malaysian writers in this study. The description of the global practices serves as a paradigm for this study to compare and contrast on the practices, particularly on the moves and steps which are underutilised.

Recent researchers set that move realisation at 90% or above is "deemed to be classified as obligatory" (Sheldon, 2011, p.241). This study uses the occurrence scale by Sheldon (2011:241) and Soler-Monreal, Carbonell-Olivares and Gil-Salom (2011) for the reasons that research articles are dynamic in nature and change accordingly over the years according to the needs of the discourse communities (Swales, 2004).

Table 1 shows the comparison on the moves and steps for Computer Sciences research article introductions. The patterns identified indicated the common and underutilised strategies which bring forth some pedagogical considerations. Out of the 13 rhetorical strategies suggested in CARS model (Swales, 2004), seven strategies were underutilised by the group.

Table 1 shows the writers in this group have missed out the benefits of those seven strategies used by their peers in the global pitch. The first three underutilised strategies are establishing a territory using topic generalisations of increasing specificity, indicating the research gap and presenting positive justifications. The other four strategies are in Move 3 which are announcing present research descriptively and/or purposively, announcing principle outcomes, stating the value of the present research and outlining the structure of the paper. The pedagogical perspective on these underutilised strategies is discussed further in the next section. The other five strategies are practiced at a similar rate to the global writers as reported by Shehzad (2012).

**Table 1** Findings of the study

Findings of the study	This study	Shehzad (2012)
Move 1		
Establishing a territory	80% Optional (Underutilised)	95% Obligatory
Topic generalisations of increasing specificity		
Move 2		
Establishing a Niche (Citations possible)	100% Obligatory	93% Obligatory
Step 1A Indicating a gap	70% Optional (Underutilised)	95% Obligatory
Step IB Adding to what is known	95% Obligatory	NA
Step 2 Presenting positive justifications (optional)	75% (Underutilised)	NA
Move 3		
Presenting the present work	85% Optional	NA
Step 1 (Obligatory) Announcing present research descriptively and/or purposively	80% Optional (Underutilised)	98% Obligatory
Step 2 (Optional) Presenting RQ or hypothesis	0% Optional	32% Optional
Step 3 (Optional) Definitional clarifications	55% Optional	NA
Step 4 (Optional) Summarising methods	15% Optional	NA
Step 5 (PISF) Announcing principle outcomes	15% Optional (Underutilised)	73% Obligatory
Step 6 (PISF) Stating the value of the present research	35% Optional (Underutilised)	55% Optional
Step 7 (PISF) Outlining the structure of the paper	50% Optional (Underutilised)	86% Obligatory

Examining Move 1 across the University group showed that the realisation of Move 1 is more definite with the research articles from the APEX and Comprehensive university group. The research articles from the private universities have an occurrence of 80% which is the lowest. The realisation of Move 1 according to the university group is in the following table.

**Table 2** Realisation of Move 1 according to university groups

<b>University Group</b>	<b>Percentage of Move 1</b>
Apex University	100
Comprehensive University	100
Research University	96
Focus University	90
Private University	80
Total percentage	94

Table 2 shows that Apex University and the Comprehensive University which includes USM, UiTM, IIUM, UNIMAS and UMS, have Move 1 realised in the entire research article sampled for the study. The percentage of the private university groups indicates the lowest accomplishment of Move 1, which means the writers from the private university group use this move as an Optional move instead of as an Obligatory Move like their peers in the public universities. The low percentage scored by the Private university group indicates that the writers in this group missed out on harnessing the advantages of this rhetorical strategy among which are capturing a wider group of audience and linking the intended research with the existing research particularly with the established research in the field.

## **5. DISCUSSION AND CONCLUSION**

All in all, the writers in the private university group have missed out the benefits of those seven strategies used by their peers in the global pitch. The first three underutilised strategies are establishing a territory using topic generalisations of increasing specificity, indicating the research gap, and presenting positive justifications. The other four strategies are in Move 3 which are announcing present research descriptively and/or purposively, announcing principle outcomes, stating the value of the present research and outlining the structure of the paper.

Underutilisation of Move 1 amongst the writers in the private universities means that the group has missed out on the potential of utilising the strategy. Move 1 is a strategy to establish the research territory by giving topic generalisations with increasing specificity. This strategy is where the writer puts forward the subject that is in focus. After bringing in the subject, the writer may choose to make the topic generalisation where general circumstances and conditions about the subject are given (Suryani et al., 2014). The writer may also review some of the previous research and include some citations with regards to the subject being introduced. The importance of this step is to bring in the previous study thus initiating a link that marks the subject with the existing discussion in the research community. In this strategy, the writer states that the research is well accepted, recent, relevant and has “become necessary” (Swales, 1990, p.142) in its way to be accepted by the academic cult. Writers who forgo this strategy is at a disadvantage compared to those who employ the strategy as it helps to capture a wider group of audience and links the intended research with the existing research particularly with the established research in the field.

In relation to this, it was also reported that the Malaysian private universities have published a distinctively smaller number of documents in Scopus compared to the public universities (Suryani et al., 2013; 2015). For the year of 2010, it was reported that the private universities published an average of 412 documents compared to the average of 3033 documents by the

public universities. Not only the number of documents indexed in Scopus is lower, but also the percentage for journal articles published by the private universities is smaller at 55.36% compared to 70.4% by the public universities. In other words, compared to the public universities, the authors in the Malaysian private universities are more likely to publish in conference proceedings, reviews and articles in press compared to journal articles. The justification may lie in the reason that publication is not included as a criterion of assessment for the private colleges ranking in the Malaysia Quality Evaluation System for Private colleges (Ministry of Higher Education, 2011). The different evaluation value on publication between the public and the private universities poses possible different publication behaviour among academicians in the two sectors. However, 19.77% of the articles were published in 2010 thus indicating that the spur to publish in journals is gaining amongst the academics in the private universities.

This paper being a part of a bigger study only illustrates the disadvantages of forgoing one move. Nevertheless, the act of not accomplishing the other six rhetorical strategies listed in the finding section does put the writers at a great disadvantage. The writers and writing instructors may want to consider on focusing and utilising the strategies to maximise their writing impact.

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